



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,783	12/29/2000	Ravi Subramanian	9824-037-999	8764

38881 7590 03/24/2005

DARBY & DARBY P.C.  
P.O. BOX 5257  
NEW YORK, NY 10150-5257

EXAMINER
----------

PHU, PHUONG M

ART UNIT	PAPER NUMBER
----------	--------------

2631

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

4

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/751,783	SUBRAMANIAN, RAVI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Phuong Phu	2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 1-27 and 32-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28, 58 and 63 is/are rejected.
- 7) ☒ Claim(s) 29-31 and 59-62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is responsive to the applicant's amendment and response filed on 2/14/05. As a result of reconsidering the applicant's argument filed on 2/14/05, the status finality of the instant application has been withdrawn, and a non-final Office Action is now set forth as following.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 28, 58 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (5,815,529), newly-cited, in view of Sklar, Digital Communications Fundamentals and Applications, newly-cited.

-Regarding to claims 28 and 58, see figure 5, and col. 8, line 29 to col. 11, line 65, Wang discloses a method and associated system comprising:

RF/IF stage step/means (505, 510, 590) of receiving an analog signal;  
A/D converter step/means (515) of converting the analog signal to a digital signal; and  
demodulator step/means (including (580)) of feed forward phase correcting the digital signal during a demodulation process.

Wang does not disclose the digital signal is match-filtered before being feed forward phase corrected.

Art Unit: 2631

Sklar teaches using a match filter in a demodulator to filter a received signal in order to maximize the signal-to-noise ratio of the received signal before being it demodulated in the demodulator (see figure 2.24 and pages 88 and 89), and he also teaches that a matched filter can be implemented as a digital match filter (see page 139-141).

It would have been obvious for a person skilled in the art to implement in Wang invention a digital match filter, as taught by Sklar, in such a way that the digital signal, after being converted by the A/D converter step/means (515) and before being feed forward phase corrected by the demodulator step/means, is match-filtered by the digital match filter in order to maximize the signal-to-noise ratio of the digital signal before it being processed in or during the demodulator step/means so that the demodulation process would be optimized.

-Regarding to claim 63, Wang in view of Sklar discloses step/means (580) for correcting a data channel via a feed-forward digital phase correction signal (outputted from (580-2)), which is generated within the demodulation process and can be based on the matched filtered digital signal, using a correction device (580-1) provided within the demodulator step/means (see Wang, figure 5, and col. 11, lines 32-58).

#### ***Allowable Subject Matter***

4. Claims 29-31 and 59-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

5. Applicant's arguments filed on 2/14/05 have been fully considered and persuasive.

Art Unit: 2631

The rejections, under 35 USC 112, second paragraph, to claims 29-31 and 58-63, have been withdrawn since the claims were amended to overcome the rejections.

The rejections to the claims, as being anticipated by Davidovici or unpatentable over Kim et al, have been withdrawn.

Claims 29-31 and 59-62 are now indicated allowable as set forth above.

However, claims 28, 58 and 63 are deemed not patentable with reasons as set forth in the above new-ground rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (6:30-2:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**PHUONG PHU**  
**PRIMARY EXAMINER**

Phuong Phu  
Primary Examiner  
Art Unit 2631

*Phuong Phu* 3/16/05